UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/350,492	07/09/1999	VENKATESH KRISHNAN	10981455-1	8205

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EXAMINER
TANG, KENNETH

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _05 June 2003_ .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _30-52_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _30-52_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _7/9/99_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1.   This non-final action is in response to paper number 11, Amendment B, filed on 6/5/03.

2.   Applicant's arguments have been fully considered but are now moot due to the new

grounds of rejections.

3.   Claims 30-52 are presented for examination.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1.   **Claims 30-35 and 47-52 are rejected under 35 U.S.C. 102(e) as being unpatentable**

over Nelson (US 2001/0049686).

2.   Referring to claims 30 and 47, Nelson teaches a system for adapting threads support to an

underlying platform, comprising:

-   virtual machine that enables execution of an application program on the underlying

    platform, the virtual machine having a threads interface layer that provides a standard

    threads interface for a set of threads associated with the application program such that the

standard threads interface does not depend on the underlying platform *("Java Virtual*

Machine", [0039], "In particular, the combination of Java programming code and the

Java Virtual Machine ("JVM") allows the creation of platform-independent software that

can be installed dynamically and/or remotely", [0006]);

- native threads interface layer that provides a threads interface that is adapted to the

   underlying platform such that a set of routines in the threads interface layer use a set of

   routines in the native threads interface layer to support the threads *("Java Native*

   Interface layer, [0039], Fig. 6, and threads, [0039], "Platform layer", [0032]-[0033]).

3.   Referring to claim 31, Nelson teaches the system of claim 30, wherein the native threads

interface layer is adapted to an operating system of the underlying platform *(Java Native*

Interface ("JNI") Layer 604 includes a library of C and/or C++ methods configured to define a

Java Virtual Machine ("JVM") that provides translation of CMIS to Java.", "this layer also

includes Solaris threads configured to provide additional support when the MPA is running in

conjunction with the Solaris operating system", [0039]).

4.   Referring to claim 32, Nelson teaches the system of claim 31, wherein the native threads

interface layer is adapted to use a set of thread support routines provided by the operating system

(Java Native Interface ("JNI") Layer 604 includes a library of C and/or C++ methods

configured to define a Java Virtual Machine ("JVM") that provides translation of CMIS to

Java.", "this layer also includes Solaris threads configured to provide additional support when

the MPA is running in conjunction with the Solaris operating system", [0039])..

5.   Referring to claim 33, Nelson teaches the system of claim 31, wherein the native threads interface layer is adapted to use a set of routines provided by the operating system that perform equivalent functions of functions in the native threads interface layer (*Java Native Interface ("JNI") Layer 604 includes a library of C and/or C++ methods configured to define a Java Virtual Machine ("JVM") that provides translation of CMIS to Java.", "this layer also includes Solaris threads configured to provide additional support when the MPA is running in conjunction with the Solaris operating system", [0039]*).

6.   Referring to claim 34, Nelson teaches the system of claim 30, wherein the native threads interface layer is adapted to a hardware architecture of the underlying platform (*Java Native Interface ("JNI") Layer 604 includes a library of C and/or C++ methods configured to define a Java Virtual Machine ("JVM") that provides translation of CMIS to Java.", "this layer also includes Solaris threads configured to provide additional support when the MPA is running in conjunction with the Solaris operating system", [0039]*).

7.   Referring to claim 35, Nelson teaches the system of claim 30, wherein the standard threads interface is a Java threads class (*Java Nati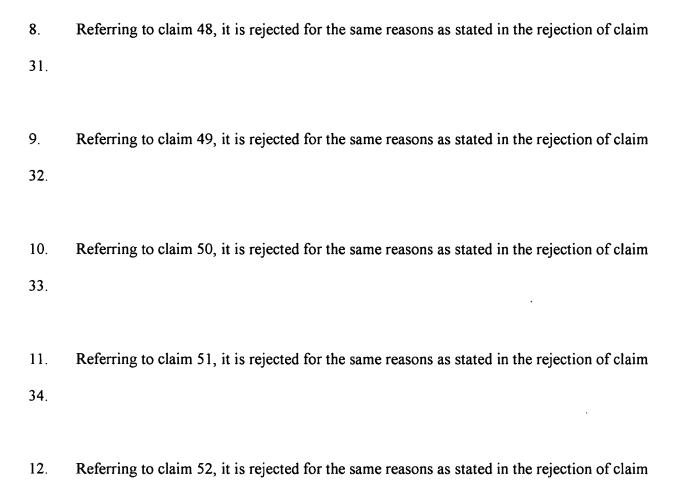ve Interface ("JNI") Layer 604 includes a library of C and/or C++ methods configured to define a Java Virtual Machine ("JVM") that provides translation of CMIS to Java.", "this layer also includes Solaris threads configured to provide additional support when the MPA is running in conjunction with the Solaris operating system", [0039]*).

8.   Referring to claim 48, it is rejected for the same reasons as stated in the rejection of claim

31.

9.   Referring to claim 49, it is rejected for the same reasons as stated in the rejection of claim

32.

10.   Referring to claim 50, it is rejected for the same reasons as stated in the rejection of claim

33.

11.   Referring to claim 51, it is rejected for the same reasons as stated in the rejection of claim

34.

12.   Referring to claim 52, it is rejected for the same reasons as stated in the rejection of claim

35.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

13.   **Claims 36 and 38-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over
Nelson (US 2001/0049686) in view of Delagi et al. (hereinafter Delagi) (US 3,858,182).**

14.   Referring to claim 36, Nelson fails to explicitly teach the system of claim 30, wherein the
routines in the threads interface layer maintain a set of context information for each thread in
terms of the virtual machine. However, Delagi teaches saving context information from a
previous virtual machine to a current virtual machine *(context information, virtual machine,
restore previous context, col 8 lines 6-18)*. It would have been obvious to one of ordinary skill in
the art at the time the invention was made to include the Delagi feature of maintaining context
information in terms of the virtual machine to the existing system so that the virtual machine can
resume the execution of any program when needed, therefore, increasing efficiency and reducing
overhad involved with resuming execution (col 8, lines 6-15).

15.   Referring to claim 38-42, it is rejected for the same reasons as stated in the rejection of
claim 36. In addition, "Official Notice" is taken that both the concept and advantages of
providing that "native threads support routines include a routine for resuming, waiting for
completion, yielding execution, stopping execution and cleaning up of a particular thread" is
well known and expected in the art. It would have been obvious to one of ordinary skill in the
art at the time the invention was made to include these basic and standard functions/routines to
the existing system for the reason of improving the control of thread/task management
scheduling.

16.   **Claims 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson (US**

2001/0049686) in view of Bucher (US 5,421,014).

17.   Referring to claim 37, Nelson teaches wherein the native threads interface layer is

adapted to an operating system of the underlying platform (*Java Native Interface ("JNI") Layer*

604 includes a library of C and/or C++ methods configured to define a Java Virtual Machine

("JVM") that provides translation of CMIS to Java.", "this layer also includes Solaris threads

configured to provide additional support when the MPA is running in conjunction with the

Solaris operating system", [0039]) but fails to explicitly teach having a set of context

information for each thread. However, Bucher shows that it is common knowledge in the art of

context switching that the multi-threading and context switching for threads that context

information for multiple are used to uniquely identify threads and the information (context

information) that is necessary to relate to each of the threads (*"Multi-threading is accomplished*

by temporarily suspending execution of one thread and beginning execution of another,

eventually restoring the suspended thread to complete its execution. In order to perform multi-

threaded operations, the computer is required to internally store context information for multiple

threads, update context information at appropriate times during execution of the thread, and

uniquely identify threads and the context information related to each of the threads.", col. 1,

lines 59-68). It would have been obvious to one of ordinary skill in the art at the time the

invention was made to include the feature of having context information for each thread for the

reason of improving context switching and multi-threading by having the necessary information

which uniquely identifies the particular thread *(col. 1, lines 59-68)*.

18.   **Claims 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nelson**

(US 2001/0049686) in view of Farrell et al. (hereinafter Farrell) (US 5,630,128).

19.   Referring to claims 43-46, Nelson teaches having native threads support routines but fails

to explicitly teach the system of claim 30, wherein they include a routine for setting a priority,

obtaining a priority, obtaining an identifier, and finally executing of a particular thread.

However, Farrell discloses threads being set a priority. The priority is also being obtained and

classified. The threads are being identified and selected before they are finally executed *("The*

invention resides in a multitasking operating system which permits application programs (and

their developers) to influence a schedule of execution of program threads derived from the

application programs, by specifying parameters for the program threads. The parameters

indicate each thread's priority level and dispatch class in which the thread resides. Based on

these parameters, the operating system schedules the program threads for execution in the

following fashion. The operating system selects the highest priority program thread which is

available for execution from each dispatch class for execution by a processor. According to one

feature of the invention, an application program thread can change the dispatch class in which

another program thread resides. According to another feature of the invention, an executing

program thread can voluntarily yield to a specified program thread in the same dispatch class or

permit the highest priority available thread in the dispatch class to be queued on the run list with

itself being available and in contention for the run list. Both of these features permit application

programs to influence the schedule of execution of the program threads.", col. 2, lines 24-45). It

would have been obvious to one of ordinary skill in the art at the time the invention was made to

include the feature of executing a thread based on priority for the reason of increasing the control

of the scheduling of the program with priority scheduling. A multitasking operation system

permits application programs to influence a schedule of execution of program threads *(see*

Abstract).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (703) 305-5334. The

examiner can normally be reached on 9:00am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, William Grant can be reached on (703) 308-1108. The fax phone numbers for the

organization where this application or proceeding is assigned are (703) 746-7239 for regular

communications and (703) 746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 746-7140.

Art Unit: 2127

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August 8, 2003

MAJID BARANKHAH
PRIMARY EXAMINER